

# FLIGHT

The  
AIRCRAFT  
ENGINEER  
&  
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 788. (No. 5, Vol. XVI.)

JANUARY 31, 1924

Weekly, Price 6d.  
Post free, 7d.

## Flight

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C. 2

Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828

Annual Subscription Rates, Post Free:

United Kingdom .. 30s. 4d. Abroad .. 33s. 0d.\*

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates

\* European subscriptions must be remitted in British currency

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## DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

- Feb. 7 .... "Airmanship at Sea," by Sqd.-Ldr. Maycock, O.B.E., R.A.F., before R.Ae.S.
- Feb. 21 .... "Aerial Photography and Survey," by Mr. H. Hamshaw Thomas, before R.Ae.S.
- Mar. 1 .... French Aero Engine Competition.
- Mar. 6 .... "Sound Detection," by Major Tucker, before R.Ae.S.
- Mar. 20 .... "The Report of the Aeronautical Research Committee's Panel on Scale Effect," by Capt. W. S. Farren.
- Mar. 24 .... British entries close for Schneider Cup and Gordon Bennett Balloon Races
- April 1 .... Entries close for Schneider Cup and Gordon Bennett Balloon Races
- April 3 .... "The British Aviation Mission to the Imperial Japanese Navy," by Colonel the Master of Sempill, before R.Ae.S.
- June 15 .... Gordon Bennett Balloon Race, Belgium
- June 21 .... F.A.I. Conference Opens, Paris
- Aug. 10 .... Tour de France for Light 'Planes

## EDITORIAL COMMENT.



FOR several years now controversy has centred round the "One Service, one uniform, one badge" problem, originally and for so long advocated in the pages of FLIGHT, as the one and only healthy solution of the most efficient working of the Royal Air Force. Not unnaturally, perhaps, having regard to human nature, prejudices and traditions in the older Services have loomed large in the arguments for and against a separate Air Service, the main feature of which, in most cases, has been a *non possumus* attitude by reason of the custom since Nelson's or Wellington's time having held good in some other groove.

For the credit of the War Office, those in high places were quick and willing to recognise the entirely new set of circumstances which the element of the Air had brought into being. From the first month in the War, Army commanders grasped the help of the Air Arm with both hands, and, as history has recorded, some of the Allies' most critical situations at the time of the German break through Belgium were saved by utilising the services of the aeroplane.

On the other hand, the Admiralty, from the first, refused to regard the realm of the Air other than from a contemptuous aspect, with the result that their attitude was reflected throughout the Navy down to the lowest unit.

Had the Admiralty early taken the Air Force seriously in like manner to the War Office, there might have been quite a different series of happenings to record in the History of the Great War, as it will ultimately be handed down to posterity. All too late, it dawned upon a few of those who had the power to move in matters strategic, that there really might be something in these beastly things after all, with the result in the later phases of the War that advantages which were lost through the negligence of aircraft in the earlier stages, were strikingly in evidence with the assistance of the Air Arm.

When a repentant repents, he usually repents whole-heartedly, and so, it may be conceded that the Admiralty having at last "repented" of its former

attitude towards aviation as a real factor in strategy, whether with land or sea forces, was most anxious to see that from thenceforward every opening for the employment of aircraft should be utilised in the movements of the Grand Fleet. Not that this "repentance" was in any way broadcasted to the world. On the contrary, it was kept a profound official secret, so far as it was possible, having regard to the requisition of R.A.F. co-operation.

Where the cat was observable emerging from the bag was in the sudden anxiety of a number of backers of the Admiralty to create, in various ways, an atmosphere of the Air Arm being of no use whatever to the Navy, except in an entirely disassociated form from the Air Force. All the Air Force was fit for was to fool around with the Army. The Navy Air Section must be entirely distinct and independent of any co-operation with any other section of Imperial Defence, no matter how its functions might be duplicated and its work overlap the efforts of the R.A.F. to give the best results in the Air for the national interests. No stone has been left unturned since the Armistice to carry on this campaign for a separate Air Force for the Navy, but, fortunately, wiser counsels have prevailed with those who have had the last say on Imperial questions, and each time when a new source of attack has been advanced, the result has always been the same—an emphatic refusal to allow anything but a separate and single Air Force. That most of the attacks by the champions for the Navy were of the crudest description was hardly their fault. The arguments in support of their contentions were so few and weak, that the more they were advanced, the greater was the exposure of the futility of carrying the discussion further.

That the Admiralty's dignity, however, should be considered, was a different matter, and from that point of view sympathy could well be expressed and an endeavour made to meet points in detail which would minimise the inevitable decision that the Admiralty must make up its mind to accept a working arrangement with the Air Ministry, in place of the separate Air Arm which it was anxious to create for itself.

Hence the appointment of Committees by the Government to enquire into the whole position, with the result that the old conclusions were again arrived at and even emphasised as being the only solution to the problem of Imperial Defence in the Air. The appointment, therefore, of a Sub-Committee of the "Committee of Imperial Defence" to examine into and make recommendations upon the question of "National and Imperial Defence," especially as to methods of co-operation and correlation between the Navy, Army and Air Force was an inspiration worthy of the Prime Minister as a constructive contribution to the solution of the various obstructive tactics which have been, in the past, so systematically placed in the way for a smooth working organisation.

Even at this late hour, there are indications of renewed activity on behalf of the Admiralty in the "Notices of Motion" which have been tabled for the new Session in Parliament on February 12. It may be these are mere phantoms, but the putting down of the questions is indicative of the existence still of the unscotched efforts of partisans who are able only to visualise Imperial questions from their own individual standpoint.

In the Report issued at the end of last week, as the result of the many meetings of this Sub-Committee, the main portions of which are published this week elsewhere in *FLIGHT*, testify to the thoroughness with which the members of that Committee approached their work, and the care which has been so scrupulously taken to weigh all arguments for and against the various views which have been so diligently advanced.

What emerges, to our mind, is that the Report presents the whole matters in dispute in such form that it should be easy for all concerned to smooth out all their differences, without loss of prestige or dignity to one or the other, and evolve a really harmonious working arrangement that will once and for all settle all the petty difficulties which have been raised as to methods of procedure and details of routine, which after all, are but grooves which have grown up by custom, and with so new a revelation as to the power lurking in the utilisation of the Third Element, should be open to variation in the broadest sense of the word.

That the path has been shorn of its worst snags by the diplomatic treatment in the report of the queries dealt with may be gathered from some of the conclusions which are there set out. In this connection they say:—

(a) While the Committee do not put forward any suggestion to change the existing division of responsibility between the three Services as described in the Report, they recommend that the responsibilities of the Navy and the Air Force in regard to the protection of communications in the narrow seas should form the subject of further investigation. The Committee further recommend that experiment in respect of the problems of air attack and defence at sea should be given due weight in Admiralty and Air Ministry programmes, in order to secure on the basis of practical experience the fullest measure of unity of professional opinion.

(b) The principal need, as regards co-operation and correlation, is closer co-ordination (dealt with in Part III of the Report).

(c) The principle that in all belligerent operations in which more than one Service is concerned one of the three Services should be selected as a "predominant partner" to co-ordinate the other Services should be examined by the Committee of Chiefs of Staffs.

In the final Report of the Sub-Committee, the General Problem is clearly set out, and it is stated:—

"They do not think that the present system can remain altogether unchanged; neither do they think it possible to sever completely the Air organisation which does work for the Fleet from the Air organisation which is responsible for Home Defence against air attack and for co-operating with the Army in other theatres of operation. A course somewhere between these two extremes is the one we recommend—"

In conclusion, based upon the evidence and facts obtained, the thirteen Recommendations (now republished in *FLIGHT*) are of a constructive character, and should help materially to create a new feeling of mutual help, subject to there being "the will to work together."

We sincerely trust the outcome of this Report may be as beneficial as the extremely long investigations and careful conclusions justify.





**VICTORY!** A photographic "impression," by C. A. Bromley, of an aeroplane shot down in flames.

# AMERICA'S SECOND RIGID AIRSHIP—"Z.R. 3"

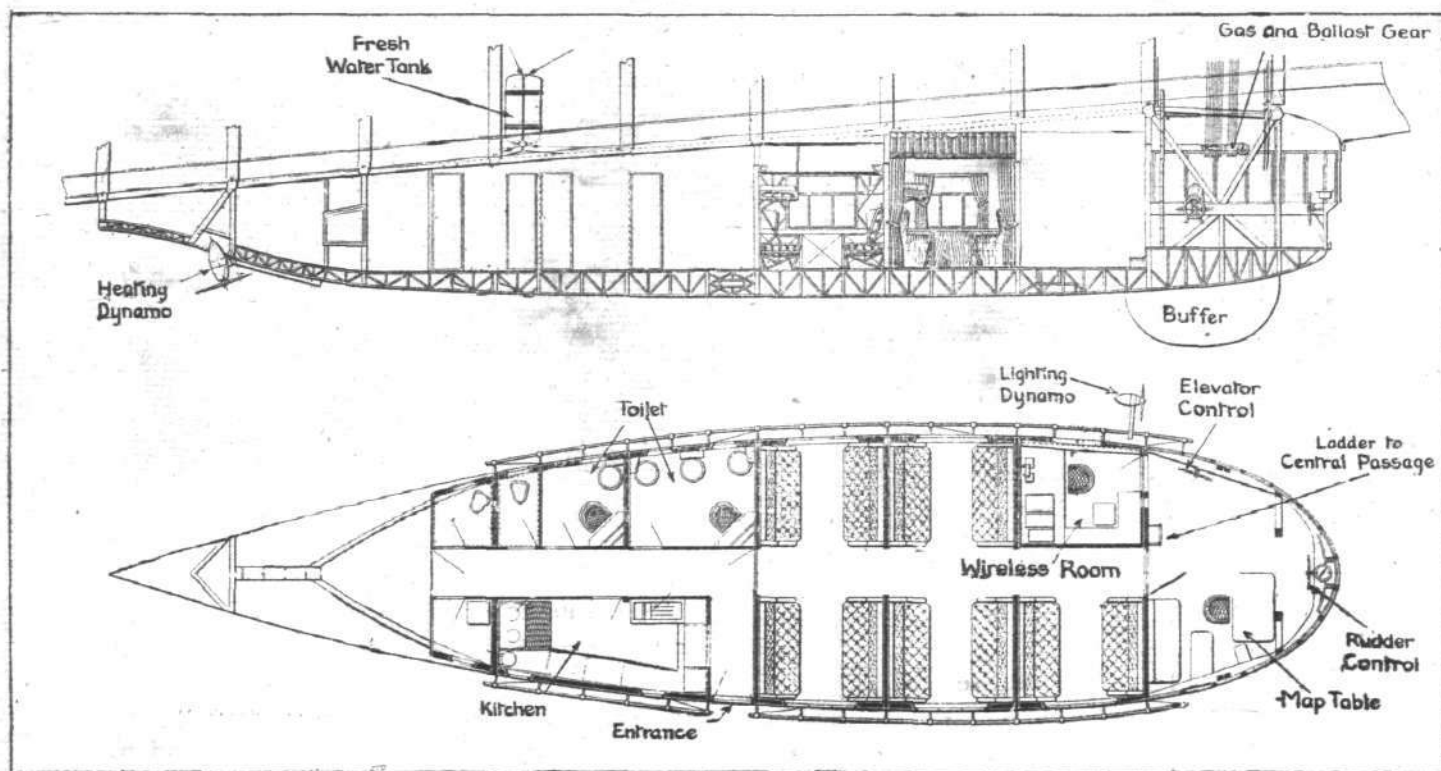
## The German-Built Zeppelin "L.Z. 126"

In our issue of November 29 last we gave an illustrated description of the American-built rigid airship "Z.R. 1"; and we now follow this up with a few notes on the Zeppelin "L.Z. 126, or "Z.R. 3," which has been built for the U.S. Navy Department by the Zeppelin Co. at their works at Friedrichshafen, and which is now practically completed. We are indebted to our contemporary *The Engineer*, for the accompanying drawings of "Z.R. 3," and also for some of the technical data.

It was originally intended that the "Z.R. 3" would be flown over to America some time this winter, but as the engines could not be completed in time the trip has been postponed till the coming spring. Under the Versailles Treaty, Germany was restricted from building airships other than commercial vessels not exceeding 30,000 cu. m. (1,060,000 cu. ft.), but in the case of the "Z.R. 3" special exception was made as regards this restriction, and its construction was permitted provided it did not exceed in size the largest Zeppelin

"Z.R. 3" is slightly less, being just over 200 m. (660 ft.). Its diameter, however, is in proportion a little larger, viz., 28 m. (91 ft.). Compared with the "Bodensee" class, the "Z.R. 3" is a larger ship in every way. Accommodation is provided for 20-30 passengers, in addition to the crew of 24.

As regards the construction of "Z.R. 3," this following more or less usual Zeppelin practice, it will be unnecessary for us to describe this in detail, as we take it for granted that most of our readers are familiar with the general constructional features of a Zeppelin. It may be mentioned, however, that the hull framework is built up of main and intermediate transverse 24-sided rings, joined from stem to stern by longitudinal girders. The lowermost longitudinal girders are, as usual, arranged within the hull to form the "cat-walk" or corridor. At the stern, aft of the control surfaces, the hull takes an octagonal form. The main rings are braced transversely with steel wire, and form the bulkheads for the gas compartments. The main rings are spaced



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**THE "Z.R. 3," OR ZEPPELIN "L.Z. 126": Elevation and plan of the front or main car, showing the accommodation for commander, passengers, etc.**

built during the War, and that it would not be used for military purposes.

The "Z.R. 3" represents the last word in Zeppelin design, embodying as it does many detail improvements, based on the experience gained with the many ships (some hundred odd) built during the past twenty-five years—especially with the commercial ships "Bodensee" and "Nordstern." The United States Navy Department being charged with the development of rigid airships, and complying with the conditions referred to above, entered into negotiations with the German Government and the Zeppelin Co. for the construction of a commercial type ship of 70,000 cu. m. (2,472,400 cu. ft.) capacity, which, upon its completion was to be delivered by air with a German crew, to the U.S. Naval Air Station of Lakehurst, N.J. All the details in connection with these contracts were completed in June, 1922, and the representatives of the U.S. Navy Dept. forthwith took up their residence in Friedrichshafen for the purpose of following the progress of the ship day by day.

While in general design the "Z.R. 3" (or "L.Z. 126") follows usual Zeppelin practice, there are, as previously stated, many detailed improvements incorporated in its construction, especially as regards the requirements of a commercial ship carrying passengers, particular attention being directed in matters of strength, safety, and convenience of passengers.

Although of about the same capacity as the later war type, or "L.70" class, Zeppelins, the overall length of

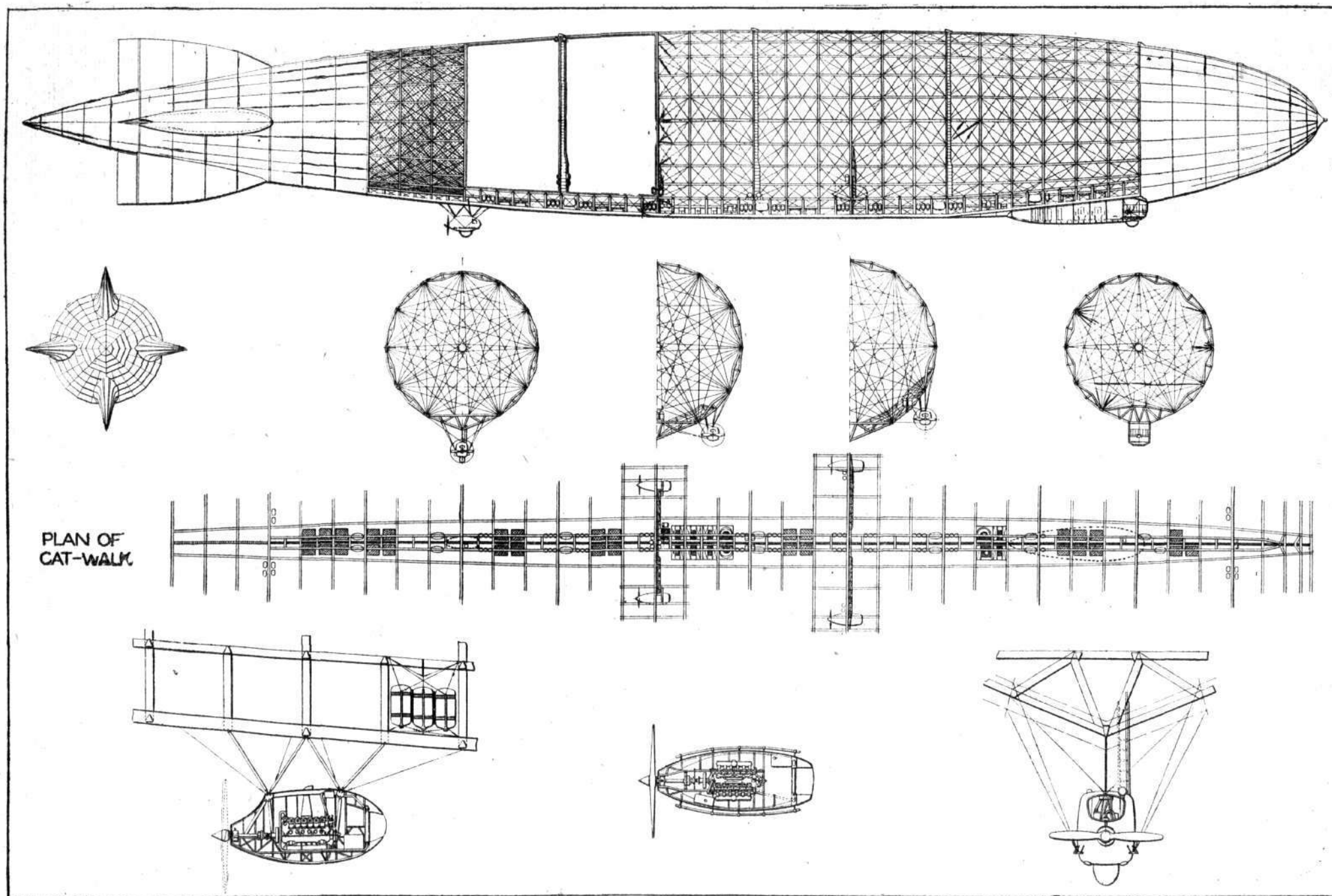
15 m. apart, except for the last two sections, where the spacing is 10 m., and at the bow where the first ring is 11 m. from the nose.

The longitudinal girders are also wire braced between the rings. The horizontal and vertical fins at the stern are built up integral with the hull, which is strengthened at this point by a system of cross girders. The nose is provided with mooring gear, and is specially strengthened for this purpose. The whole of the inner portion of the hull carries a network of ramie cord for protecting and supporting the gas bags.

The complete hull framework is covered externally with cotton fabric, varying in thickness to meet the loading at different points. The fabric is given several coats of dope, with an aluminium finish outside and a black finish inside for the purpose of deflecting and absorbing the light rays. The gas bags are made of cotton fabric and gold-beaters' skin.

In all there are six cars on "Z.R. 3," five of which contain the engines and the sixth, located forward, forming the control and passengers' car. The latter, which is comparatively large, is attached flush with the hull, and is built up on a framework of triangular and rectangular girders. In the forward portion of this car is the control cabin, containing all the necessary gear, etc., for the operation and navigation of the ship. Behind this is the wireless cabin and the passengers' compartments, the latter being five in number, each seating five passengers comfortably. Large





AMERICA'S SECOND RIGID AIRSHIP, "Z.R. 3" ("L.Z. 126") : General arrangement drawings of the latest Zeppelin built at Friedrichshafen for the U.S. Navy Department.

*Reproduced from "The Engineer" by permission.*

windows are provided, giving an excellent view below, and the five compartments in question are luxuriously fitted up, Pullman fashion, each compartment containing four beds or bunks arranged transversely in two tiers and provided with curtains. When not in use the upper bed folds down and serves as a back for the seat, formed by the lower bed. Passengers' lavatory and water-closet accommodation is provided behind the main compartments on the port side, and the remainder of the space at the rear of the car is utilised for the kitchen, etc.

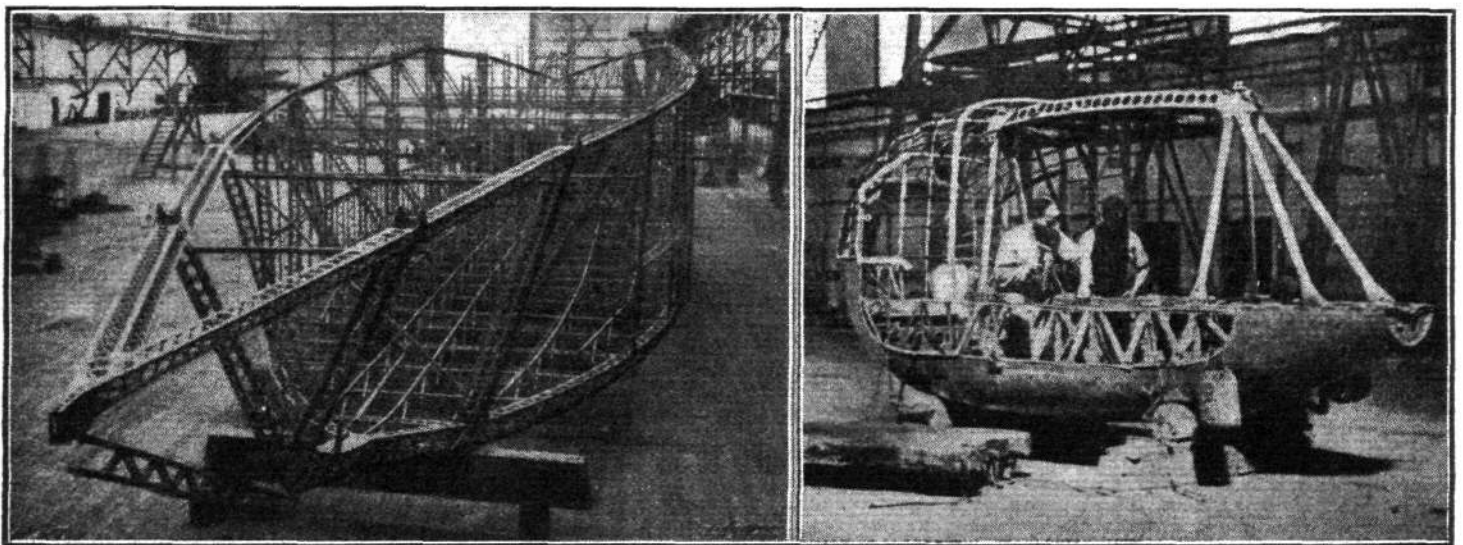
Accommodation for the officers and crew is located along the sides of the corridor, and consists of a cabin for the commander with bed, table, chair, cupboard, etc.; two sleeping cabins, each with two beds, for the officers; a saloon, with table and chairs, for the officers; six sleeping cabins, each with two beds, for the crew; two saloons, with tables and chairs, for the crew; and lavatory, etc., accommodation.

Cargo, luggage, and mails are carried in the corridor, twenty compartments being provided for this purpose.

The five power cars, which are of streamline form, built up on a duralumin framework (as shown in one of our illustrations), are suspended by cables and struts from the hull framework in the following positions: two, port and starboard, slightly above the level of the keel a short distance behind the front car; another two, port and starboard, lower

the interposition of an elastic coupling built into the fly-wheel and a dog clutch.

As soon as "Z.R.3" is completed it will be filled with hydrogen gas, for, as the ship will not become the property of the U.S. Navy until it is delivered at Lakehurst, it is not intended to employ Helium at the outset. Several short trial flights of from two to four hours' duration will follow, after which a longer flight of about 24 hours will be made in order to give the engines, etc., a thorough test. As regard the Atlantic trip, the direct route from Friedrichshafen to the East Coast of the U.S.A. is some 4,000 odd miles ("R.34" covered about 3,225 miles on its Atlantic trip). It is well known that very stormy west winds prevail on the North Atlantic during the winter months—winds averaging 35 m.p.h. at altitude—so that the progress of the airship on this route would naturally be considerably hampered. As the average west winds in the vicinity of the 30th degree of latitude are considerably less, it has been planned to fly from Friedrichshafen across southern France, passing Cape Finistere, the Azores, south of the Bermudas, and thence northward to Lakehurst, N.J. This route will be about one-third longer than the direct route, being some 5,200 miles. A record crossing, therefore, is not to be expected, and it is estimated that the "Z.R.3" will make the passage in between three and four days. The flight will be made without any



THE "Z.R.3," OR ZEPPELIN "L.Z.126": On the left the framework of the front or main car. Right, one of the five power "eggs," each of which contains a 400 h.p. reversible Maybach engine.

down and closer together about amidships; and the fifth car placed centrally immediately below the keel, midway between the last pair of cars and the stern. Each car contains a 400 h.p. engine driving a pusher-aircrew.

These engines have been specially constructed by the Maybach Motor Co., and contain several new features, the principal one of which is that the engines themselves are reversible, thus doing away with the usual reversing gears. Reversing is brought about by sliding the camshaft. This engine has 12 cylinders arranged in V-form, and the crankshaft is completely housed in the upper part of the crank-case, the camshaft and valve operating gear being arranged between the two rows of cylinders.

Each engine is equipped with two twelve-cylinder Bosch magnetos, driven through an elastic coupling, and the ignition apparatus is arranged to work in either direction of rotation without alteration. Control of the ignition is secured by rotation of the driving shaft, the arrangement being such that the intensity of the spark is the same for all positions. The circulating water pump delivers equal volumes of water for both directions.

It is claimed that it is impossible to start the engine in a wrong manner, as the starting levers, the throttle, and reversing levers, and the ignition control are interlocked in such a way that they can be operated only in the correct direction. The interlocking arrangements render it impossible to start the engine otherwise than in the direction fixed by the position of the camshaft. In addition, they are such that the ignition control is always set correctly for the direction in which the engine is to run. It is, moreover, impossible to reverse the engine if the throttle lever is not in the neutral position, and before the throttle lever can be moved the reversing lever must be in one or other of its end positions.

The propeller is coupled directly to the motor, except for

intermediate stop, and the ship will be navigated by the experienced personnel of the Zeppelin Co.

Turning to the commercial possibilities of this ship, let us consider the performance on a regular air line, such as, for example, a route from San Francisco to Honolulu, a distance of 2,300 miles. This journey today takes a steamer about five days. Under favourable weather conditions "Z.R.3" would be able to make the trip to Honolulu in a little more than 28 hours, and the return flight to San Francisco in about 36 hours. Thus it would be possible to make a week-end trip to Honolulu, with a day to see "the sights." On this route "Z.R.3" could carry 30 passengers and 15 tons of freight or luggage, mails, etc., whilst the service could be so arranged that connections would be made with steamships sailing to Asia. "Z.R.3" could also be used for flights around the United States. The route New York-St. Louis-Los Angeles-Chicago-New York could be accomplished in about four days, without intermediate landings; besides the crew and fuel, a load of 10 tons would be available for passengers, mail and freight.

The following are the official figures relating to the principal characteristics of "Z.R.3" ("L.Z.126"):

Overall length	..	..	200 m. (660 ft.)
Maximum diameter	..	..	28 m. (91.8 ft.)
Overall height	..	..	31 m. (101.6 ft.)
Gas capacity	..	..	70,000 cu. ft. (2,470,000 cu. ft.)
Total lift	..	..	81,300 kilos. (80 tons)
Disposable lift (appx.)	..	..	41,000 kilos. (40 tons)
Maximum speed	..	..	122 k.m.p.h. (75.6 m.p.h.)
Cruising speed	..	..	108 k.m.p.h. (67 m.p.h.)
Speed (4 engines)	..	..	100 k.m.p.h. (62 m.p.h.)
Speed (3 engines)	..	..	90 k.m.p.h. (56 m.p.h.)
Range (full power)	..	..	5,600 km. (3,472 miles), or 46 hrs.
Range (cruising)	..	..	8,400 km. (5,200 miles), or 78 hrs



## R.A.F. AND IMPERIAL DEFENCE

THE Report issued last week on National and Imperial Defence of the Sub-Committee of the Committee of Imperial Defence, appointed by Mr. Bonar Law in March, 1923 (Cmd. 2029, Stationery Office, price 6d.), is an important contribution to the solving of this vital problem.

The Sub-Committee was composed of the following members of the late Government:—Lord Salisbury (in the Chair), Mr. Neville Chamberlain (Chancellor of the Exchequer), Lord Curzon (Foreign Secretary), the Duke of Devonshire (Colonial Secretary), Lord Derby (Secretary for War), Lord Peel (Secretary for India), Sir Samuel Hoare (Secretary for Air), and Mr. Amery (First Lord of the Admiralty), with Lord Balfour and Lord Weir. Sir Maurice Hankey was secretary, and the terms of reference were:—

"To inquire into the co-operation and correlation between the Navy, Army, and Air Force from the point of view of National and Imperial Defence generally, including the question of establishing some co-ordinating authority, whether by a Ministry of Defence or otherwise, and, in particular, to deal with:—

(a) The relations of the Navy and the Air Force, as regards the control of Fleet air work.

(b) The corresponding relation between the Army and the Air Force.

(c) The standard to be aimed at for defining the strength of the Air Force for the purposes of Home and Imperial Defence."

The question of the relations between the Navy and the Air Force as regards the control of Fleet Air work was remitted to a special sub-committee composed of Lord Balfour, Lord Peel, and Lord Weir. Their report, which was issued last summer, and published in summarised form in *FLIGHT*, was adopted by the Government. By this decision the principle of a single Air Service was upheld. On the other hand, as the sub-committee did not think it possible to sever completely the Air organisation which does work for the Fleet from the Air organisation responsible for Home Defence and for co-operating with the Army, they proposed a course "somewhere between those two extremes."

The Committee, in their conclusions with regard to the co-operation and correlation of the Navy, the Army, and the Air Force, state:—

(a) While the Committee do not put forward any suggestion to change the existing division of responsibility between the three Services, they recommend that the responsibilities of the Navy and the Air Force in regard to the protection of communications in the narrow seas should form the subject of further investigation. The Committee further recommend that experiment in respect of the problems of air attack and defence at sea should be given due weight in Admiralty and Air Ministry programmes, in order to secure on the basis of practical experience the fullest measure of unity of professional opinion.

(b) The principal need, as regards co-operation and correlation, is closer co-ordination.

(c) The principle that in all belligerent operations in which more than one Service is concerned one of the three Services should be selected as a "predominant partner" to co-ordinate the other Services should be examined by the Committee of Chiefs of Staffs.

(d) While the menace of attack from the air has greatly increased and necessitates a strong Home Defence Air Force, the three Staffs are agreed that in existing conditions the liability of the country to seaborne invasion has considerably diminished as compared with pre-war standards.

The following are the chief passages of the report of the Main Committee on the co-operation and correlation between the three Services from the point of view of National and Imperial Defence:—

Considerable progress had been made before the commencement of the present inquiry in the direction of defining the post-war responsibilities of the three fighting Services. The inquiry by Mr. Bonar Law's Sub-Committee on the Capital Ship (March, 1921), which heard much evidence as to the potentialities of the air arm at sea, had resulted in the retention of the capital ship as the basis of our sea power. The scope of the inquiry, however, did not extend to a definition of the respective responsibilities of the Navy and the Air Force in regard to operations at sea. The Committee of Imperial Defence had also approved an arrangement made between the War Office and Air Ministry in regard to the responsibility for anti-aircraft defence, under which the Air Force was to be responsible for the control of anti-aircraft defences, the War Office providing the necessary personnel and matériel on the

ground. Since the war the Royal Air Force has been given the responsibility for the security of the mandated territory of Iraq and Palestine.

In addition, on March 16, 1922, the following principles in regard to the co-operation of the three Services were announced in the House of Commons:—

(i) That the Air Force must be autonomous in matters of administration and education;

(ii) That in case of defence against air raids, the Army and Navy must play a secondary rôle;

(iii) That in the case of military operations by land or naval operation by sea, the Air Force should be in strict subordination to the General or Admiral in supreme command; and lastly

(iv.) That in other cases (such as the protection of commerce and attack on enemy harbours and inland towns) the relations between the Air Force and the other Services should be regarded rather as a matter of co-operation than that of the strict subordination which is necessary when aeroplanes are acting merely as auxiliaries to the other arms.

In order to ascertain whether the above allocation of responsibilities between the three Services required further readjustment, the Committee felt it necessary to make investigations into the strategical basis of our system of National and Imperial Defence. The most important result of this part of the inquiry was to confirm the vital need for a great increase in our air forces, which had been established in previous inquiries. It soon became clear, not only that the Air Force has an important part to play in the defence of our home territory against seaborne attack as well as of maritime communications in waters adjacent to the British Islands, but that to provide protection against aerial attack a large aerial Home Defence Force was required. The adoption by the Government of the Committee's recommendations on this subject added to the responsibilities of the Royal Air Force. In other respects, however, it did not bear upon the problem of co-operation and correlation between the three Services, which depends on those aspects of National and Imperial Defence where strategical or tactical co-operation between two or more Services is required. The Committee therefore inquired into these questions in considerable detail.

So far as the protection of territory and communications in the wider oceans is concerned, the question of a readjustment of responsibilities between the Service Departments did not arise.

In the narrow seas, however, Imperial territory and communications are evidently liable to attack, not only by surface craft and submarines, but also by aircraft, in so far as they are within the radius of action of aircraft operating from foreign territory. The Committee therefore found it necessary to inquire how far the power of the Navy to protect territory and communications in the narrow seas is affected by modern developments of naval and aerial warfare. So far as territory is concerned, it is satisfactory to be able to record that the three General Staffs are agreed that in existing conditions the liability of the United Kingdom to seaborne invasion as compared with the years preceding the war is negligible. Another matter on which some measure of agreement was found to exist between the Naval Staff and the Air Staff is in regard to the increased risks to communications in those portions of the narrow seas which are exposed to attack by aircraft operating from shore bases, such as the English Channel and the Mediterranean. Both Staffs admit that the advent of aircraft has increased the danger to communications in such waters, though they differ as to the extent of this danger.

Apart from this, when the Committee came to examine the question of the protection of maritime communications in the narrow seas, they did not find the same measure of agreement between the Staffs which they had met with in regard to the protection of the territory of the Mother Country. On the contrary, this part of the inquiry revealed wide differences of professional opinion between the Naval Staff and the Air Staff, both in matters of principle and detail, on such questions as the power of a fleet to operate within effective striking range of hostile aircraft, the effectiveness of attacks on a fleet by aircraft and the power of a fleet to defend itself against such attacks, the defence of naval bases against aircraft attack and the protection of certain portions of our trade routes. The more closely the inquiry was pressed in matters of detail the wider these differences appeared. In the course of this inquiry frequent appeals were made to the experience of the war in support of both sides of the various



controversies, and the Committee obtained independent historical evidence from the Historical Section. The conditions of the late war, however, are not necessarily applicable to future wars, particularly in view of the potentialities of development in aircraft.

In the light of present knowledge the Committee did not feel competent to form an opinion on the difficult technical questions on which the General Staffs take different views. They felt that, apart from the provision of an adequate Air Defence Force, the most useful service they could render at the moment was to devise machinery for securing the smooth co-operation of the three Services, notwithstanding the differences of professional opinion, and for gradually building up a doctrine common to the three Services. While the Committee do not put forward any suggestion to change the existing division of responsibility between the three Services they recommend that the responsibilities of the Navy and the Air Force in regard to the protection of communications in the narrow seas should form the subject of further investigation. They also consider that experiment in respect of the problems of air attack and defence at sea should be given due weight in Admiralty and Air Ministry programmes, in order to secure on the basis of practical experience the fullest measure of unity of professional opinion.

Before leaving the question of the co-operation and correlation between the three Services, the Committee desire to draw attention to the views of Lieut.-General Sir Charles Harington on the subject which were formed as the result of his experience in command of the Allied Forces of Occupation at Constantinople. These views illustrate and confirm the soundness of the principles approved by the Cabinet in March, 1922. General Harington suggests "that the principle should be laid down that the 'predominant partner' co-ordinates and the other Services should conform in exactly the same loyal way in which Admirals de Robeck and Brock—both officers senior to me—have helped me." While the Committee are not prepared to recommend without further technical examination that this principle should be adopted in the settlement of all military problems in which more than one Service is concerned, they consider that it is worthy of the most serious consideration, and should be examined by the new Committee of Chiefs of Staff referred to later in this Report.

Dealing with co-ordination and a Ministry of Defence, the report continues:—Since the war the most widely-discussed proposal for overcoming our defects in co-ordination is a Ministry of Defence, which has been put forward repeatedly both in Parliament and in the Press. In 1922 Sir Eric Geddes's Committee on National Expenditure recommended "the creation of a Co-ordinating Authority or a Ministry of Defence responsible for seeing that each Force plays its part and is allotted appropriate responsibility for carrying out various functions." A Cabinet Committee which reviewed the Geddes's Report endorsed the above recommendation, but, while admitting that the creation of a Ministry of Defence may be the ultimate solution of the problem, did "not consider that the present time is appropriate for the fusion of the administration of the three Services under one Minister." They recommended instead "that the Committee of Imperial Defence should be in constant session all the year round in order to consider and advise on matters of policy affecting the three fighting Services." On March 21, 1922, the late Secretary of State for the Colonies (Mr. Churchill), during a debate in the House of Commons, made an important speech in favour of a Ministry of Defence as the ultimate solution of our problems of co-ordination, though he admitted that the time for accomplishing this had not arrived. The gist is contained in the final passages:—

"No solution of a harmonious or symmetrical character will be achieved in the co-ordination of the Services except through the agency of a Ministry of Defence, but it is not possible to create such a body at the present time, nor will it be possible for a considerable time. In the interim the only steps which are open to us are to create machinery for pooling the administrative functions of the three arms and to create a common staff brain, from whose exertions in the future the responsible advice given to the Cabinet of the day in regard to matters of defence must and can only effectively originate."

The interim steps referred to by Mr. Churchill were the appointment of a committee, under Sir Alfred Mond, whose place was later taken by Lord Weir, to consider the amalgamation of the common Services of the Navy, Army and Air Force, and, later, of a sub-committee of the Committee of Imperial Defence under the Minister of Education, on the question of establishing a joint Staff College for the three Services. Lord Weir's Committee reported that "the amalgamation of the common

services would only be practicable if it formed part of a comprehensive scheme of reorganisation which provided for the establishment of a Ministry to control a defence force in which the identity of the Navy, Army and Air Force had been merged." They recommended, however, a complete scheme for co-ordinating the common services, which has since been adopted by the Cabinet and is being put in operation. The report of Mr. Wood's Committee, proposing a scheme for the formation of a Joint Staff College, has been circulated to this Committee and is now before the Committee of Imperial Defence.

In view of the uncertainty as to what is meant by the term "Ministry of Defence," the Committee thought it desirable to approach some of those who have advocated this solution of the problem of co-ordination, as well as other outside authorities, in order to ascertain their views on the subject. Among the outside experts who were good enough to give the Committee the benefit of their experience on this subject there were only two advocates of a Ministry of Defence, and each of them contemplated its formation by different methods. Sir Eric Geddes proposed to achieve co-ordination of the Services by the creation of a single Secretary of State for "Warfare" or "Defence," with responsibility for the three Services. Under the Secretary of State he would put the Admiralty, War Office, and Air Ministry, each of which would be under a Sub-Minister. These Sub-Ministers should not be eligible for Cabinet rank, as that would make for departmental competition between them. Among themselves they would be equal in importance and would bear the same relation to the Secretary of State as a Parliamentary Under-Secretary holds to his Ministerial chief today. The Sub-Ministers would preside respectively at the Board of Admiralty, Army Council, and Air Council, which would remain more or less as at present. The Secretary of State would have a very small office, containing a Statistical Accountant and a Council consisting of the Sub-Ministers of the Navy, Army and Air Force, with two Members each from the Board of Admiralty, Army Council, and Air Council. The Secretary of State would have to obtain the endorsement of the Committee of Imperial Defence "before his estimates and his provisions were taken to the Cabinet." Sir Eric Geddes added proposals for organisation after the outbreak of war, which it is unnecessary to enter into here.

Major-General Sir Frederick Sykes advocated a Ministry of Defence by means of a form of fusion or amalgamation of the existing Service departments. He considered that "the real solution lies in definite, unified supreme control by a Defence Ministry, with the Prime Minister as independent Chairman, and a joint Staff which would really think out defence as a whole." Failing this policy of perfection, General Sykes would "support every measure which will pave the way for such control." He would achieve this by "the real strengthening of the mandate and constitution of the Committee of Imperial Defence. In his view, the Committee should frame estimates for defence for the three Services, and a special section should be formed for the specific purpose of jointly framing and supervising major schemes and measures of defence. As many Services as possible should be unified. The personnel of the regular arms should be trained from boyhood. There should be a joint boy-mechanic training, a joint Cadet College, a joint Staff course, etc. The question of the amalgamation of similar Services should be re-opened."

The proposals of the remaining outside authorities had many points in common. They all laid stress on the need for co-ordination. They all proposed that this co-ordination should be effected through the Committee of Imperial Defence. They nearly all admitted, either directly or by implication, that the work of directing the Committee was too heavy for the Prime Minister to undertake single-handed and that he should have the assistance of a Minister, as Vice-Chairman, who could give most of his time to this task. Several laid stress on the importance of securing the co-operation of the Dominions in the Committee of Imperial Defence.

In detail, the proposals varied considerably. Lord Midleton and Lord Haldane did not indicate any particular developments of the existing Committee of Imperial Defence. Major-General Seely, Field-Marshal Sir William Robertson, Major-General Sir J. H. Davidson, M.P., and Lieut.-General Sir Aylmer Hunter-Weston, M.P., all advocated definite extensions of the Committee of Imperial Defence organisation, which resembled one another in principle while differing in detail.

#### Sir W. Robertson's Views

Field-Marshal Sir William Robertson's proposals are summarised in his Memorandum as follows:—

"(a) Neither a Ministry of Defence nor a combined Imperial



General Staff will provide, or help to provide, the co-ordinating authority we require.

"(b) Controlling authority, in its true meaning, must be vested in the supreme executive power, the Cabinet, and it cannot be placed elsewhere.

"(c) Experience has shown that we cannot conduct a great war through the medium of a Cabinet of 20 or more Ministers, and that the duty is best assigned to a small body of Ministers having no other duties to perform. As this organisation is not feasible in peace time, its place should be taken by a Council of Imperial Defence, which will form a nucleus for war.

"(d) In order to furnish this Council with the professional assistance needed, there should be, working under it, a Technical Committee, charged with the investigation of all operative and administrative questions, and with presenting them, with recommendations thereon, to the Council for consideration and approval.

"(e) In time of war a Minister of Supply and a Minister of Man-power should be appointed and a War Cabinet should be formed. The latter, assisted and advised by the three Chiefs of Staff, would take over the duties in (c) and (d).

"(f) Every effort should be made to enlist the co-operation of the Dominions, both as to State policy and war preparations."

The Committee considered the criticisms of Lord Haldane, Lord Middleton, and Sir William Robertson to be overwhelming as against all proposals for setting up a Ministry of Defence or any Minister of Defence with authority overriding that of the Ministers at the head of the Service Departments, or a combined Staff. They reported to that effect to the Government, and made certain recommendations with respect to the methods and work of the Committee of Imperial Defence, which were adopted by the Government and are now in operation.

The conclusions as then arrived at were published in *FLIGHT* at the time. These continue the then existing system of departmental initiative, but relieve the Prime Minister by allowing responsibility for wider initiative in directing the common action of the three Services to rest with the Chairman of the Committee of Imperial Defence, acting under the general direction of the Committee and with the assistance of the three Chiefs of Staffs. The Chairman presides over the Committee in the absence of the Prime Minister, and in matters of detail interprets the decisions of the Prime Minister and the Cabinet in the Departments concerned. Each of the three Chiefs of Staff is given an individual and collective responsibility for advising on defence policy as a whole, the three constituting a "Supreme Chief" of a War Staff in commission.

The Committee add one point to their conclusions, recommending that representatives of the Dominions should be invited to attend, as members, meetings of the Committee of Imperial Defence.

From the earliest days of the Committee of Imperial Defence, representatives, it is stated, of the Dominions have from time to time been invited to take part in its proceedings, and the Secretary of State for India has for many years attended its meetings. The subject of Dominion representation was discussed at the Committee in May, 1911, when all the Dominions were represented and the following resolution was passed:—

"That one or more representatives appointed by the respective Governments of the Dominions should be invited to attend meetings of the Committee of Imperial Defence, when questions of naval and military defence affecting the Overseas Dominions are under consideration."

Before the war every effort was made to give effect to the above resolution by taking advantage of the presence in this country of representatives of the Dominions, to invite them, with the concurrence of their own Governments, to the meetings of the Committee and of its Sub-Committees. Since the war no such opportunities have offered, though in fact many of the meetings of the Imperial Conference, 1921, were analogous to meetings of the Committee of Imperial Defence, those present included the regular members of the Committee, the subjects were mainly those which naturally fall to the Committee, and the secretarial work was supplied by the Committee in co-operation with the Colonial Office, the Dominions and India.\* Moreover, both before and since the war the Dominions and India have been furnished with many of the Reports of the Committee of Imperial Defence.

[\* Note by Chairman:—"This is equally true of the Imperial Conference, 1923. The question of defence was discussed by the plenary conference at great length, and in similar conditions to those mentioned in this Report. In addition, important discussions took place at the Admiralty and Air Ministry."]

Dealing with the strength of the R.A.F., the last item in the Terms of Reference, the report quotes the conclusions of the Government, come to as their policy in June, 1923 (published in *FLIGHT* at the time), and states it is not possible at the present time to make a recommendation as to the ultimate standard to be aimed at for any of the Services. As regards the R.A.F. units serving with the Navy, the ultimate strength in war will be determined in the main by the number of first-line aeroplanes which can be carried by the Fleet. As regards co-operation with the Army, the actual figures require further detailed discussion between the Chiefs of the General Staffs. The Committee recommend that these discussions should be pushed forward as rapidly as possible by the Chiefs of Staff under the proposed new procedure. The squadrons and machines authorised up to April 1, 1924, exclusive of Home Defence, are:—

United Kingdom—(a) (i) *Fleet Air Arm*: For embarkation in carriers in all waters (13 flights), 78 machines; (ii) *Naval Co-operation*: Flying boats (1 flight), 5 machines; (b) *Army co-operation* (2 squadrons), 24; (c) *Reserve* (3 squadrons), 36. Mediterranean—Seaplanes (1 flight), 6 machines; (aircraft for embarkation in carriers shown under United Kingdom above); Egypt (3 squadrons), 34; Palestine and Transjordan (1½ squadrons), 16; Aden (1 flight), 4; Iraq (8 squadrons), 92. Total, 295. India (6 squadrons), 72. Grand total of machines, 367.

In regard to airships, the report quotes the policy of the Government as announced in Parliament on July 26 last, and published in *FLIGHT*.

The Report concludes with a memorandum covering the report of the Special Sub-Committee on the relations of the Navy and Air Force, and a series of conclusions, already referred to, upon the relations between the Navy and the Air Force, embracing: I. "The General Problem"; II. The Present System; III. Recommendations. The latter, Part III, which we republish, is as follows:—

"We have endeavoured to explain, in the first place, the general nature of the objection felt by the Air Department to any important change in the existing system, and by the Admiralty to its maintenance. We have also given a full account of the system as it has been developed up to the present moment. We now propose to turn to the future and make certain suggestions which, as we hope, may go far to reconcile the contending parties and to make material improvements in the existing system.

"Our task is materially lightened by the fact that, in the course of discussions before your Sub-Committee, a larger measure of agreement was found possible on certain aspects of the problem than had at one time seemed likely.

"In the first place, it appeared that on some important points the practice, though not the written law, of the Air Department was already in conformity with the wishes of the Admiralty. For example, the Admiralty are very desirous that the Group Captains in contact with the Navy should be officers with experience of the Fleet Air Arm.

"*First Recommendation*.—Broadly speaking, the Air Ministry take the same view, and we recommend that it be made part of the settled practice of the Air Ministry to consult with the Admiralty before such appointments are made. We think the same principle should be extended to the Air Officer Commanding the Coast Defence Area and the Senior Air Officer on board a carrier.

"The Admiralty desire that the Air Ministry shall provide all the *matériel* which they demand. This, we believe, has always been the intention of the Air Ministry.

"*Second Recommendation*.—We think it should be formally laid down, and that, in the event of the Air Ministry, for one reason or another not carrying into effect the wishes of the Admiralty, there shall be an appeal by either party to the Committee of Imperial Defence.

"We have no reason to believe that there is any fundamental difference of opinion between the two Services with regard to certain questions of discipline, such, for example, as those which might arise when a member of the Air Force leaves the ship, where he is under the command, for every purpose, of the Captain, and goes for training to the aerodrome, which is under the control of an officer of the Air Force.

"*Third Recommendation*.—But though there are no differences of principle, there are certain obscurities which it would be desirable to clear up, and we therefore recommend that the two Departments should, in collaboration, draw up a code of regulations which would make clear the relations between them at all points where they come in contact.

"In all the cases that we have so far enumerated there may have been misunderstanding, but there has not been at any time, so far as we are aware, any difference of principle.

"We now turn to a class of cases where, as a result of

discussion before your Sub-Committee, the Air Department have shown a disposition to meet Admiralty views. The first of these relates to the framing of the Naval Estimates. The Admiralty desire that in these Estimates should be included the cost of the Fleet Air Arm.

*"Fourth Recommendation.*—The Air Department are of opinion that technically this course would be inconvenient, but have no objection to it in principle. Your Sub-Committee are of opinion that this question should be settled by the Treasury in consultation with the two Fighting Services.

*"The Admiralty require that the Air Force on board ship should be completely under the orders of its Captain. Your Sub-Committee are of opinion that, inasmuch as all the air-men on board ship are under the Naval Discipline Act, this, in theory, is already provided for, but undoubtedly in the minds of those chiefly concerned some obscurity hangs over the subject. This, we think, should be explicitly cleared up.*

*"Fifth Recommendation.*—The position of a member of the Air Force when on board ship does not differ in law, and should not differ in practice, from the position of, say, a Marine.

*"Sixth Recommendation.*—In order fully to carry out the policy laid down in the preceding paragraph, we recommend, and have reason to believe that the Air Ministry will accept the principle, that all reports on officers of the Fleet Air Arm, whether confidential or otherwise, should be signed by the Captain of the ship and passed through the Naval Commander-in-Chief to the Air Officer Commanding the Coastal Area.

*"Seventh Recommendation.*—A further point which should be dealt with under this heading is one on which the Admiralty have expressed considerable anxiety and on which we have reason to believe that the Air Force are prepared to meet their wishes. The Admiralty are apprehensive lest, in time of war or other emergency, the Air Ministry might withdraw from the Navy units of the Fleet Air Arm and use them for other purposes. In respect of this we recommend that it should be definitely laid down that the personnel, *matériel* and reserves of the Fleet Air Arm should not be withdrawn by the Air Ministry without either the consent of the Admiralty or a decision of the Cabinet.

*"Before concluding this class of questions, we must take note of a complaint made by the Admiralty that on board the carrier there is a good deal of duplication of effort between the purely Naval Service and the Air Force.*

*"Eighth Recommendation.*—We think this subject should be looked into by the two Departments concerned and we do not doubt that arrangements can be made by which all overlapping can be effectively avoided.

*"We now come to the last class of questions with which we have to deal, which are at once the most difficult and the most important. We are strongly of opinion, and we have every hope that the two Services share our view, that, since in war the Services may have to co-operate, it is vital that in time of peace they should form an accurate estimate of each other's needs and capacities.*

*"Ninth Recommendation.*—We therefore recommend—

- (i) That Naval officers should be appointed to the Air Staff.
- (ii) That Air Force officers should be appointed to the Naval War Staff.
- (iii) That some means should be devised by which the wealth of technical knowledge at the disposal of the Admiralty should be utilised in the technical departments of the Air Ministry, preferably by reinforcement of the staff of these departments by naval technicians.

*"These recommendations refer exclusively to the headquarters of the two Services; but it is perhaps even more important that the junior ranks of the two Services, who will in time occupy responsible positions, should have a considerable sprinkling of persons familiar with the needs and capacities of the other Service.*

*"The Air Force look to a system of naval seconding for carrying out half this policy, and we cannot believe that the Admiralty would be averse to having members of the Air Force on board the carriers. Unfortunately, seconding from the Navy to the Air Force, as at present understood, must be deemed to have been hitherto a failure, and we find it difficult*

to believe that, if the present system remains unchanged and unexplained, any great improvement is likely to occur. We cannot be surprised that a young officer who has just joined the Navy is reluctant to abandon, even temporarily, the department under which he is expected to serve and to exchange it for one which is essentially different. The feeling is natural and cannot be ignored.

*"It must, however, be pointed out that if the word 'seconding' is thus used this is not what any naval officer under the present scheme is expected to do. In ordinary practice, when we say that an officer is 'seconded' to another Service, we, no doubt, intend to express the idea that for the duties which he had to perform and for the authorities he had to obey in the Service which he has temporarily left will be substituted new duties and new authorities. But this does not really represent the facts in the case of so-called 'seconding' from the Navy into the Air Force. The duties of the seconded officer, though carried out in the air, remain, nevertheless, naval duties, and the Captain whom he has to obey continues to be a Naval Captain.*

*"Tenth Recommendation.*—In order to make this situation perfectly clear, we recommend that no seconded naval officer shall be asked to perform non-naval air duties, except with the consent of the Admiralty. We believe the Air Force are prepared to accept this principle.

*"If this recommendation be carried into effect, the most important change involved in the operation of what is (some-what inaccurately) called 'seconding' is the change from the naval to a flying uniform—a change which can hardly be said to touch the essence of the situation.*

*"Eleventh Recommendation.*—We suggest, however, in order to meet the sentimental, though not on that account unimportant, objection, that the uniform of a naval flying man who, except for his period of training, is to all intents and purposes still under the Admiralty, should be distinguished from the flying men under the Air Force by some differentiating badge or mark. This would be the outward and visible sign that he still remains a member of the Service which he originally joined. It would be a clear indication that what he proposes to do is to add accomplishments in naval flying to the other accomplishments which his brother officers are cultivating. If such a plan were found practicable, the objection felt by the Admiralty to the introduction of what they deem an alien element into the domestic life of the ship should be largely mitigated.

*"It might well be that, if this scheme succeeded, the number of officers seconded from the Navy to the Air Force would exceed the 30 per cent. of the total contemplated by the Air Service.*

*"Twelfth Recommendation.*—We see no reason why 30 per cent. should be regarded as the maximum, and we should propose to leave it to the Admiralty to determine what the proportion should be, subject to the proviso that not less than 30 per cent. of Air Force Officers, whether regular or short service, should serve on board the carriers.

*"There is another point of great practical importance on which something must be said. It is agreed that the work of spotting for naval gunnery is one which should be undertaken in all cases by naval officers, but such investigations as we have been able to make convince us that naval spotting and fleet reconnaissance cannot be sharply divided, and that the officer entrusted with the one may inevitably find himself called upon to perform the other also. We have been unable to discover any objection to this change, which, on the face of it, seems obviously reasonable.*

*"Thirteenth Recommendation.*—We therefore recommend that fleet reconnaissance, as well as naval spotting, should be entrusted to naval officers, seconded or otherwise."

The concluding words of the report are:—

*"If anybody will take the trouble to read the evidence given before us they will, we believe, be impressed by the number of problems for which a solution has been found by the two Departments or suggested in this Report. We earnestly trust that no merely technical difficulties will be allowed to stand in the way of a settlement, which in the public interest is most urgently required."*

## A New Air Port for Paris

PARIS, it appears, is just as badly situated in regard to her Air Port as is London. Anyway, the growth of air traffic to and from Paris has now increased to such an extent that a scheme is being considered for the establishment of a new Air Port. The new scheme, which comes from

M. Henri Sellier, suggests that Mont Valérien should take the place of Le Bourget. Mont Valérien is not only much closer to the centre of Paris (being only some five miles' drive through the Bois de Boulogne), but lies in much more pleasant surroundings than Le Bourget. The latter aerodrome will probably be retained as a dépôt and repairing centre.



## NOTICES TO AIRMEN

### Charges for the Use of Bonded Stores and Transit Sheds at Customs Aerodromes.

It is notified that—

1. At British Customs Aerodromes where Bonded Store or Transit Shed facilities exist, free accommodation will be provided for the storage of goods for a maximum period of 48 hours (72 hours in the case of goods subject to German Reparation Tax), not counting Sundays and Public Holidays. After the expiration of that period, rent as detailed below will be charged.

Tobacco.	Per 100 lb. or part thereof.
For each period of 28 days or part thereof	6d.
Other Goods.	Per cwt. (gross) or part thereof.
For the first 7 days or part thereof ..	6d.
For the second 7 days or part thereof ..	1s.
For the third 7 days or part thereof ..	1s. 6d.
For subsequent periods .. .. .	Increased <i>pro rata</i> .

2. Owners of aircraft are required to submit to the C.A.T.O. in charge of the aerodrome a manifest or certified true list of all goods so stored.

3. The Air Ministry will not be liable for any loss of or damage to goods deposited in the above-mentioned buildings.

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### The New Air Ministry

LAST week the appointment of Brig.-General Thomson as Air Minister in the new Government was announced, and later Mr. William Leach's appointment as Under-Secretary for Air was given out.

Mr. Leach, like his father, is a Bradford worsted manufacturer. He joined the I.L.P. in 1895, when in his 25th year, edited the Bradford Labour papers, *Forward* and the Bradford *Pioneer*, and led the Labour Party on the City Council, being chairman of the Finance Committee, and an alderman. He has been M.P. for Bradford (Central) since 1922, and was opposed to our part in the late War.

The Secretary of State for Air (The Rt. Hon. C. B. Thomson) has appointed Mr. C. Ll. Bullock to be his Principal Private Secretary and the Under-Secretary of State for Air has appointed Mr. P. J. Oldfield to be his Private Secretary.

### A Suggested R.N. Air Reserve

WITH concrete suggestions of details, Admiral Henry Campbell, writing from 94, Piccadilly, has sent the following communication to the Press:—

"The recent notices in the Press of the agreement which has been entered into between the Government and the British, Foreign, and Colonial Corporation, Ltd., for the establishment of an Imperial Air transport company lead me to think that the time is appropriate to call attention to some proposals which I made to the chairman of Pangbourne Nautical College some four or five years ago. The object in view was the provision of a Royal Naval Air Reserve which would be efficient and economical while complying with the interests and requirements of the Royal Navy, Royal Air Force, the Mercantile Marine, and of mercantile transport companies. The proposals are an extension of a system submitted by me for the Royal Naval Reserve which was adopted by the Admiralty about 1912 or 1913 and developed with success prior to, during, and since the Great War.

"I have discussed the question of a Royal Naval Air Reserve (R.N.A.R.) over a long period with naval and mercantile marine officers, including Captain S. M. Day, C.B., D.S.O., A.D.C., R.N.R., and others. My proposals, which are founded on the following main premises, have met with the general agreement of those who have examined them:—

"(1) Airmen operating from ships must be trained from a class that is accustomed to sea life.

"(2) Airmen must have a profession to which to return when their probably short period of service in the air is completed, as comparatively few could be retained professionally in the Air Service for administrative or other services.

"(3) The navigating instruments and the method of navigating for sea and air craft could be made very similar, and

### NOTICE TO GROUND ENGINEERS.

#### Engine Control Switches on Aircraft Fitted with Dual Control

It is notified:—

1. Every civil aircraft which has a rotary engine, is fitted with dual control and is used for the preliminary training of pupils, must be provided with a master switch so situated that it can be operated only by the instructor. Aircraft fitted with a master switch are to have the following notice posted near the engine switch in the pupil's cockpit:—

#### "CAUTION.

"Before controlling the starting of the engine by this switch see that it is not cut out by the master switch."

2. Aircraft fitted with dual control and used for advanced training need not be fitted with a master switch.

3. All switches must be readily accessible for the instant operation of the instructor or pupil as the case may be, but it should not be possible for any switch to be *accidentally* operated. Indicator plates, showing clearly the direction of operation, should be fitted near all switches.

4. The direction of operation of switches is to be standardised as follows:—

(a) Ordinary control switches: *down* for "off," *up* for "on" or running position.

(b) Instructor's master switch, when fitted: *down* to include pupil's switch in circuit, *up* to cut out pupil's switch.

5. The provisions of Ground Engineers Notice No. 5 of the year 1921 in regard to the protection of controls must be observed when aircraft fitted with dual control are used for passenger carrying. (No. 2 of 1924.)

consequently the officers who had passed a brief period in the Air Reserve, after a good grounding in the mercantile marine requirements, would readily take up their original duties again when they returned to a ship.

"(4) The terse, particular and descriptive language of the sea, and the knowledge of ships, charts, landfalls and figurative are peculiar to seamen.

"(5) The service of aircraft from seacraft for purposes of offence and defence is likely to be greatly extended in the future.

"(6) The training of mercantile marine officers for the air could be worked into the scheme of training young officers for the R.N.R., while still preserving the advantages which this system provides for the Royal Navy, the mercantile marine, and shipowners, from the points of view of efficiency and economy.

"(7) The mercantile marine training institutions are well suited to give the preliminary education to young officers who are desirous of passing through the Royal Naval Air Reserve as flying, observing, or mechanical officers.

"(8) The same arguments, with slight modification, apply to the rank and file."

### Daily Air Service to Ireland

ARISING, no doubt, out of the several experiments conducted by the Air Ministry last year, in which mails were carried by air between Plymouth, Manchester and Belfast, we learn that the De Havilland Aircraft Co., Ltd., will shortly be operating a daily air service between Manchester and Belfast for passengers and goods—we are, as yet, uncertain if anything has been arranged just at the moment for the carrying of mails, although, of course, the establishment of such a service opens up great possibilities in this connection. The machines used on this new service will be the D.H.50 type.

### Light 'Planes for Australia

It is extremely gratifying to be able to record this week that already orders are being placed for light aeroplanes. Thus, the de Havilland Aircraft Co. has several D.H.53's, with Blackburne engines, on order for the Air Ministry, while another batch coming through the shops is for Australia. The D.H.53, it will be remembered, did not win any prizes at Lympne, having been designed for all-round qualities rather than for specific performances. Nevertheless the "Humming Bird" and "Sylvia" were admitted by everyone to be among the finest machines at the meeting, and it is gratifying to find these qualities recognised in such a practical manner. Doubtless, after this year's competitions for two-seaters, quite a considerable business in light 'planes will spring up.

# PERSONALS

## To be Married

The engagement is announced of Mr. C. T. FREEMAN, D.S.C., A.F.C., late Major R.N.A.S. and R.A.F., only son of Mr. and Mrs. P. B. F. Freeman, of Southgate, and MARGARET LEONORA, second daughter of Mr. and Mrs. J. J. E. WATSON, of Potters Bar.

## Items.

Lieut.-Aviateur Willy Coppens, Air Attaché at the Belgian Embassy, has returned to London from Belgium.

Captain Silvio Scaroni, Air Attaché at the Italian Embassy, has returned to London from the Continent.

## NEW LEGS FOR OLD

WE take it there are few of our readers who have not heard the story of Marcel Desoutter's crash in his Blériot at Hendon in 1913, which crash resulted in an above-the-knee amputation of the leg; how, after his recovery, he brought his engineering and mechanical knowledge into use and designed and built himself an artificial leg of metal—light in weight and scientific in operation—to replace the heavy, painful, common-or-garden wooden leg; how, in a few months' time, he was walking about with ease and comfort with but little outward sign that anything was amiss—not only walking, but flying again.

Since that time the Desoutter Artificial Leg—from the start a beautiful piece of work—has been developed and improved, and it can justly claim to be the last word in artificial limb construction. This being the case, it would be thought that the many rendered in varying degrees limbless owing to the War would thus be able to obtain some considerable relief to their suffering. Unfortunately, however, owing to the comparatively high cost of this device, the

Ministry of Pensions could not, at first, see its way to supply the Desoutter limb to all ranks of pensioners, and only the more fortunately situated ones, blessed with the necessary financial means, were able to avail themselves of this boon. Thanks, however, to the unceasing agitation on the part of many good persons—notably Capt. H. H. C. Baird, D.S.O., himself a satisfied user of the Desoutter limb, a special committee of enquiry was set up to investigate the matter, with the result that the Desoutter Light Metal Limb can now be supplied to all ranks.

As there appear to be many ex-Service men, who have lost legs, who are unaware of this opportunity now available, we gladly draw attention to the facts of the case in our columns, and also would refer to a useful pamphlet written by Capt. Baird, containing full particulars of the Desoutter Artificial Leg, procedure for obtaining same, etc., which may be obtained on receipt of 2d. for postage from Capt. H. H. C. Baird, Bridge, near Canterbury.

## The New Under-Secretary for Air Visits Croydon

MR. WILLIAM LEACH, the new Under-Secretary for Air, has lost no time in obtaining first-hand experience of civil aviation, as carried out from Croydon Aerodrome, for, on Monday, January 28, he not only paid a visit to the aerodrome, but he also went up for a flight of about half-an-hour's duration. He went up in the Instone D.H.34 (Napier "Lion") "City of Glasgow," piloted by Capt. F. L. Barnard (of King's Cup fame), and had as fellow passengers Brig.-Gen. Festing (Controller of Licences and Aerodromes), Col. Bristow (Technical Adviser to the Instone Air Line) and Maj. Greer (I.A.L., General Manager). The machine was taken to a point some 40 miles outside the aerodrome, and during the return trip, Mr. Leach was given the opportunity of observing the practical working of the guiding of an aeroplane into port by means of wireless.

Afterwards, in expressing his entire satisfaction with his experiences, Mr. Leach remarked: "I want civil aviation to progress, but a greater hope is that in the future we shall have aviation for war purposes killed. As Under-Secretary I shall be more concerned, perhaps with the civil side, and attending to it will undoubtedly be a congenial task."

## Dopes and Fabric

THE paper under above title, read by Dr. J. E. Ramsbottom, of the Royal Aircraft Establishment, before the Royal Aeronautical Society on January 24, was a most weighty one, but as the subject, although of the greatest importance, is scarcely one of general interest, we do not propose to refer in detail to the paper here. In the very nature of the subject, it is not possible usefully to condense it, so that all who wish to study the subject in detail should make a point of obtaining a copy of the Society's Journal, a forthcoming issue of which will contain the lecture in full. The lecturer stated that the best results, as far as tautness was concerned, had been obtained with closely-woven highly-calendered fabric, indicating that the adhesion was satisfactory, even when the dope penetration was small. The initial tension at which the fabric was stretched on the framework was important, and it had been found that slack planes in service could often be traced to the practice of covering the planes with fabric some considerable time before the dope was applied, the fabric in the meantime losing practically all its tension. The lecturer stated that in practice it was probable that the tensions obtained by hand-stretching rarely exceeded 2 lb. per in. warp, and 1 lb. per in. weft. As the contractile power of dope might reach 7 lb. per inch, he thought it safe to assume that greater tension could be put in the fabric without distorting the framework. Dr. Rams-

bottom, in making a comparison between nitro and acetyl dopes, stated that fabric doped with the former was less sensitive to changes in humidity. As regards fire risks in the air, there appeared to be little difference between the doping schemes, while in crashes fires had been known to occur with aeroplanes constructed entirely of metal, and also with those treated with fireproof dope, thus indicating that the danger of fire after a crash could not be eliminated by using fireproof materials.

## The Structure of Rigid Airships

THE paper on "Some Problems in Connection with the Structure of Rigid Airships," read before the Institution of Aeronautical Engineers, on January 25, by Lieut.-Col. V. C. Richmond, O.B.E., B.Sc., A.R.C.S., A.F.R.Ae.S., proved to be a most interesting one, the more so in view of the plans for resuming airship work in this country at an early date. We regret we have not the space to publish the paper in full, and would advise all interested in the subject to obtain the forthcoming issue of the Proceedings of the Institution, in which the paper and illustrations will be published. The lecturer arrived at the conclusion that structurally a lower fineness ratio than hitherto used was an advantage, and thought that the trend of future design would undoubtedly be in that direction. In this connection it is of interest to note that the German airship *Bodensee* was of much lower ratio than the War type Zeppelins. He also thought that a reduction in the number of longitudinals was advantageous, and stated that there was every indication that it would be possible to achieve this modification. Future airships would probably have an external cross-section of 13 sides or so, and the longitudinal girders would only be subjected to very light lateral loads due to the outer cover.

## Czechoslovakia's Aviation Budget

THAT Czechoslovakia means to push ahead as far as aviation is concerned is borne out by the fact that the 1924 Budget provides 163,330,000 kr. (£1,090,000 roughly) for aeronautical purposes—an increase of 26,000,000 kr. over last year's estimate.

## Esthonia, Too!

ESTHONIA is also alive to the importance of aviation, for their Budget provides for 10 million Esthonian marks as a subsidy to the Esthonian Air Traffic Co.—"Aeronaut." The company has the monopoly of air traffic in Esthonia, and undertakes to organise whatever air lines are required by the Ministry of Communications. At present it is operating the Revel-Riga and Revel-Helsingfors lines.



# THE ROYAL AIR FORCE

London Gazette, January 18, 1924

## General Duties Branch

Flight Lieut. C. L. King, M.C., D.F.C., is placed on half-pay, Scale B. (Jan. 20); Flying Offr. W. J. Cooke is transfd. to the Reserve, Class A. (Dec. 5, 1923).

London Gazette, January 22, 1924

## General Duties Branch

The following Flight Cadets having successfully passed through R.A.F. Cadet College are granted permanent communs. as Pilot Offrs., with effect from Dec. 19, 1923, and with seny. of the dates indicated:—J. L. F. Fuller-Good (Aug. 15, 1923); N. Young, G. C. A. Armstrong, E. S. C. Davis, J. E. Gray-Hill Thomas, R. R. Reedman, W. C. Ward, E. A. McKinley-Hay, M. D. Ommanney, R. B. H. Jackson, H. M. Groves, C. C. Edwards, H. R. F. Baxter, C. W. Moss, J. H. Hutchinson, L. W. Dickens, N. W. F. Mason, F. W. L. C. Beaumont, W. J. P. Sloan (Dec. 19, 1923).

A. H. J. Howlett is granted a short service commn. as Flying Offr., with effect from, and with seny. of, Jan. 9. The following Pilot Offrs. are promoted to the rank of Flying Offr.:—H. S. C. Bassett, J. B. Wilson (Oct. 1, 1923); R. Collins, F. W. M. Downer, G. F. Reeves, M. C. W. C. Flint, M.C., A. C. W. Richards, M. B. F. Watson, C. Denison, D. McG. Morphy, A. Thomson, B. R. C. Coope (Dec. 10, 1923); R. G. Chapell (Jan. 14). Air Commodore C. L. Lambe, C.B., C.M.G., D.S.O., is restored to full pay from half-pay. (Dec. 11, 1923); Pilot Offr. J. T. Sykes resigns his short service commn. (Jan. 10).

## Reserve of Air Force Officers

The following are granted communs. on probation in General Duties Branch, in the ranks stated (Jan. 22):—

Class A.—Flying Officers.—F. F. Minchin, C.B.E., D.S.O., M.C.; A. G. Loton. Pilot Offr.—W. V. Piggott.

## ROYAL AIR FORCE INTELLIGENCE

**Appointments.**—The following appointments in the Royal Air Force are notified:—

### General Duties Branch

Group Captain.—E. F. Briggs, D.S.O., O.B.E., to H.Q., Iraq, for Technical (Staff) duties. 2.1.24.

Squadron Leaders: A. T. Williams to No. 4 Flying Training Sch., Egypt. 14.1.24. R. Addenbrooke-Prout, O.B.E., M.C., to R.A.F. Depot. 15.1.24.

Flight Lieutenants: R. A. Courtney, M.B.E., to H.Q. Egypt. 23.12.23. J. Noakes, A.F.C., M.M., to Engine Repair Depot, Egypt. 28.12.23. A. M. Blake, A.F.C., F. MacB. Paul and C. J. W. Hatcher, A.F.C., all to No. 4 Flying Training Sch., Egypt. 23.12.23. G. D. Daly, D.F.C., to No. 208 Sqn., Egypt. 23.12.23. F. A. Norton to H.Q. Coastal Area on transfer to Home Estab. 6.2.24. A. Ferris to Palestine Wing H.Q. 23.12.23. W. R. Cox, M.C., A.F.C., to No. 216 Sqn., Egypt. 23.12.23. C. F. Horsley, M.C., to No. 14 Sqn., Palestine. 23.12.23. F. J. W. Mellersh, A.F.C., to No. 4 Flying Training Sch., Egypt. 23.12.23. A. R. M. Rickards, A.F.C., to No. 4 Flying Training Sch., Egypt. 4.1.24. A. C. Bayley to H.Q., Egypt. 28.12.23.

Flying Officers: R. J. Montgomery-Moore and J. Turner, both to Engine Repair Depot, Egypt. 23.12.23. R. S. Bruce to No. 208 Sqn., Egypt. 23.12.23. L. E. Dowse to No. 2 Armoured Car Co., Palestine. 23.12.23. G. S. Shaw to R.A.F. Base, Calshot. 30.1.23. F. J. C. Rybot to No. 2 Sqn., Andover. 4.2.24. A. M. West to No. 5 Armoured Car Co., Iraq. 14.1.24. R. W. Pontifex to No. 6 Sqn., Iraq. 21.12.23. H. L. P. Lester to No. 20 Sqn., India, 18.1.24. H. W. Clayton to No. 1 Sqn., Iraq. 18.1.24. J. Bowen to H.Q., Iraq. 18.1.24.

Pilot Officers: H. M. Groves, C. W. Moss, M. D. Ommanney, and R. R. Reedman, all to No. 4 Sqn., S. Farnborough, instead of to Sch. of Army Co-operation as previously notified. 19.12.23. D. G. Pinnell to No. 5 Sqn., India. 18.1.24. H. V. Michell and T. J. Woods, both to No. 6 Sqn., Iraq. 18.1.24. W. J. E. Rodwell to No. 20 Sqn., India. 18.1.24. A. E. St. G. Gratte to Aircraft Depot, India. 18.1.24. H. P. Morris, N. H. F. Unwin and E. R. Newbigging, all to No. 8 Sqn., Iraq. 18.1.24.



## IN PARLIAMENT

### Cardington Aerodrome and Airship Agreement

MR. WELLS, on January 21, asked the Secretary of State for Air if, in view of the importance of finding work for the unemployed in Bedford at the Cardington Aerodrome, he will state whether there is any obstacle to the successful conclusion of the airship agreement; if not, whether there is any method by which the work on building the airship and sheds can be expedited; and can he state what procedure will be necessary to bring the full scheme into effect?

SIR S. HOARE: The settlement of the details of the airship agreement has proved a complicated matter, and although at an advanced stage, is not yet complete. I have arranged for the promoters of the scheme to start preliminary work at Cardington as soon as the terms of the necessary legal documents have been settled. The agreement will have to be laid before Parliament for confirmation, and the scheme cannot be fully inaugurated until Parliamentary approval has been obtained.

### Aircraft Construction and Portsmouth Dockyard

MAJOR SIR BERTRAM FALLE asked whether, in view of the extensive use in the future of airships and aircraft by and in conjunction with naval forces,

Class A.A.—Pilot Offr.—W. R. Bailey.

The following offrs. are confirmed in rank, with effect from the dates indicated:—Flying Offrs.—R. C. Armstrong, D.F.C. (Dec. 9, 1923); D. A. Hughes (Jan. 17). Pilot Offrs.—J. F. Greenwood (Dec. 11, 1923); F. A. Ledgard (Jan. 3); C. W. Daggett (Jan. 17).

Flying Offr. W. W. Saunders relinquishes his commn. on account of ill-health, and is permitted to retain his rank ((Dec. 20, 1923).

### Princess Mary's Royal Air Force Nursing Service

The following promotions are made (Jan. 1):—Senior Sisters to be Acting Matrons.—Miss M. B. Botwood, Miss M. W. Campbell. Sister to be Acting Senior Sister.—Miss M. Moddrell.

Staff Nurses to be Actg. Sisters.—Miss M. G. Wiseman, Mrs. L. I. Mackenzie, Miss M. A. MacVicar, Miss E. S. Browbank, Mrs. G. M. Rutledge, Miss E. L. M. Graham, Miss A. B. O'Niell, Miss G. Inman, A.R.R.C., Miss E. K. Griffin, Miss E. A. Nunn, Miss M. E. Hards, Miss M. H. Adamson, Miss E. W. Hunter, Miss C. M. Youngson, Miss M. Simpson.

### Memoranda

The grant of an hon. commn. as Flying Offr. to A. R. T. Smith, as Gazette, June 12, 1923, is cancelled; the permission granted to Sec.-Lieut. E. R. Davis to retain his rank is withdrawn (June, 1923), on his enlistment.

London Gazette, January 25, 1924

## General Duties Branch

Wing Comdr. P. K. Wise, C.M.G., D.S.O., is placed on half-pay, scale B. (Dec. 22, 1923); Observer Offr. J. F. H. Stevens to take rank and precedence as if his appt. as Observer Offr. bore date Oct. 16, 1922, immediately follg. the name of Flying Offr. G. V. Carey on the gradation list. The reduction to take effect from Dec. 18, 1923.

## Store and Accountant Branch

Squadron Leader H. E. J. Hewitt to Aircraft Depot, Iraq, instead of to H.Q., Iraq., as previously notified. 23.11.23.

Flight Lieutenants: D. Mitchell to Aircraft Depot, Iraq. 5.12.23. W. R. P. Allen to Stores Depot, Iraq, instead of to Basrah Group H.Q., as previously notified. 23.11.23. T. Fawdry, M.B.E., to R.A.F. Depot. 28.1.24.

Flying Officer T. L. Grey to No. 55 Sqn., Iraq, instead of to Aircraft Depot as previously notified. 23.11.23.

Flight Lieutenant (Stores) L. H. Vernon, to Stores Depot, Egypt. 23.12.23.

Flying Officers (Stores) E. V. Bashford and G. A. Longhurst, both to Stores Depot, Egypt. 23.12.23. J. London to Aircraft Depot, Egypt. 23.12.23.

J. H. P. Clarke to Aircraft Depot, India. 18.1.24.

Flying Officer (Accountant) J. H. B. Carson to Aircraft Depot, Iraq. 18.1.24.

Pilot Officer (Accountant) J. Charles to No. 111 Sqn., Duxford. 25.1.24.

### Medical Branch

Squadron Leader H. A. Hewatt, M.B., D.T.N. & H., to Baghdad Combined Hospital. 13.12.23.

Flight Lieutenants: H. B. Troup to Station Commandant, Iraq. 17.12.23.

M. Coglan, M.B., to R.A.F. Depot, 26.1.24.

Flying Officer F. K. Wilson, M.B., to No. 1 School of Techn. Training (Boys), Halton. 15.1.24.

Squadron Leaders: T. J. Kelly, M.C., M.B., B.A., to Basrah Combined Hospital. 22.12.23. R. W. Ryan, M.B., to Station Commandant, Iraq. 23.12.23. P. T. Rutherford, O.B.E., to H.Q., Egypt. 18.1.24.

Flight Lieutenant: F. E. Johnson to Baghdad Combined Hospital. 23.12.23.

E. G. S. Hall, M.B., to H.Q., Egypt. 12.1.24.

Flying Officers: J. G. Russell, M.B., B.A., and C. V. D. Rose, both to Baghdad Combined Hospital. 23.12.23. G. Clark, M.B., to Basrah Combined Hospital. 22.12.23.

### Chaplains' Branch

Revd. M. J. Eland to H.Q., Iraq. 28.12.23.



and the interdependence of both these arms of the defensive forces of the country for the common good, he will consider the construction and repair of airships and aircraft at His Majesty's dockyard, Portsmouth, which is well situated for the purpose?

SIR SAMUEL HOARE: As regards the construction and repair of aircraft for the Royal Air Force, the policy of the Air Ministry is still as stated in my reply to my hon. and gallant friend on July 26 last. As regards airships, the question does not arise, since the construction of airships by the Government is not at present in contemplation, and negotiations for handing over existing facilities for construction to a commercial company are in progress.

### Notices of Motion

ON January 24 the following Notices were tabled:—Mr. Penny gave notice, on going into Committee of Supply on the Air Estimates, to call attention to the administration of the Air Force, and to move a resolution; Lieut.-Col. Windsor-Clive upon the strength and equipment of the Air Forces; Sir Francis Watson upon the condition of the Air Force, and Lieut.-Col. Howard-Bury (on the Navy Estimates) upon the control of the Air Arm of the Navy.



### 55 Squadron Re-union

THE Annual Re-union Dinner of the 55 Squadron Association will be held on Saturday March 8, 1924, at 8 p.m.

Members are requested to forward their subscription for the current year with an intimation as to whether they will be able to attend the dinner to the Hon. Sec., Squadron Leader Nicholas, A.E.E. (Home) Martlesham Heath, at the earliest possible moment.

### The U.S. Army Around-the-World Flight

FOLLOWING the announcement which appeared in FLIGHT for December 13 last, in respect to the proposed flight around the world organised by the U.S. Army Air Service, we give below the names of the Army pilots who have been selected by the U.S. War Department. The officers chosen are Maj. F. L. Martin, Lieut. L. H. Smith, Lieut. Erik Nelson, and Lieut. L. Wade. The reserves are Lieut. Leslie P. Arnold and Lieut. Le Clair D. Schultze.



**BY DOUGLAS B. ARMSTRONG**  
**An Interesting Aero Letter.**

A CURIOUS instance of the use of a British postage stamp in a foreign air-post service is afforded by a "flown" cover in the possession of Mr. Alan Turton, sent by a correspondent in Singapore to one in Java. It is franked by a current stamp of the Straits Settlements, but bears on the back of the envelope the special cachet of the Batavia-Bandoeng air service of July-August last, having apparently arrived at Batavia just in time to catch the mail plane for Bandoeng on its return flight.

**Dantzig**

It has been freely stated that the last issue of Danziger air post stamps, introduced on October 8 and withdrawn on November 1, 1923, was never employed for aerial postage. We understand, however, that this is contrary to facts, and that at least one flown cover franked with the stamps in question is in the hands of a prominent German aero-collector. A single sheet of each value is said to have been printed in error upon the old paper watermarked with vertical hexagons, instead of the latest pattern of horizontal octagons.

**Sweden**

At the time of the aerial meeting at Gottenburg last summer we endeavoured to obtain information as to the mail flights, if any, but were assured that none was undertaken. This intelligence appears to have been erroneous, for we have lately been shown a portion of a letter bearing several denominations of contemporary Swedish postage stamps (without overprint) cancelled with a concentric postmark inscribed "Goteborg-Luft," and date 26.7.23 in the centre.

**Indo-China.**

THE proposed inauguration of air mail lines between Saigon and Canton and Saigon and Puom in French Indo-China recalls the fact that one of the rarest air post covers is that used on the experimental flight from Saigon to Laos and vice-versa on April 20 and 27, 1921. Only a very few letters were carried on each trip, franked with current postage stamps of Indo-China, and impressed with a rubber stamp reading "PAR AVION" in large capitals.

**Polish Pigeon Post**

A CORRESPONDENT asks for information concerning a pigeon post that is believed to have been in operation between Warsaw and Kattowicz some time last year. Although pigeon posts are admittedly of interest to aero-philatelists, they are to some extent outside the scope of an aeronautical journal, and we confess that until we received this enquiry we had never heard of this particular example. However, we have instituted enquiries on the spot, and hope to be in a position to publish some details of the service in an early article.

**North Polar Air Covers**

SOUVENIR postcards are to be issued and a special postmark provided in connection with the proposed Amundsen aerial trip to the North Pole, according to a *New York Times* message, which states that the first aerial mail service via the North Pole will be inaugurated as part of the polar expedition. The Norwegian Government is said to have agreed to accept mails at the Spitzburgen post office specially cancelled "at the North Pole," for delivery to all parts of the world. Souvenir postcards will be sold to help defray the expenses of the flight both in Norway and the U.S.A., and may be franked with the postage stamps of either nation. They will however, bear the proviso "Delivery subject to accidents beyond our control." Apparently, the aero postcards will be issued and employed under somewhat similar conditions to the London-Windsor cards of 1911, but it seems probable that the amount of mail to be carried will have to be restricted.

**Smith and Sons Relax**

THE Smith Athletic Club fancy-dress dance, held at the Salon de Danse, Willesden, one evening last week, was a wild success. Not less than 300 of S. Smith and Sons' workers within a few hours of "downing tools" joined in the whirling throng of merry-makers in the guise of fairies, sheikhs, pierrots, and scores of other gaily-coloured costumes, "accessories" naturally being duly honoured.

Prizes were presented by Mrs. Gordon Smith, wife of the genial managing director, who joined whole-heartedly in the fun of the evening.

The fancy dresses were so good and so numerous that Mr. Gordon Smith very kindly duplicated the whole of the prizes. The ladies' prizes were carried off by Miss G. Corstophorie (Wireless), Mrs. Coletan (Wasp), and Miss Morgan (a Broken Reid), while the gentlemen's prizes went to Mr. Missen (Felix the Cat), Mr. Shaw (a tramp), and Mr. Brown (an Oriental).

A good sprinkling of the Motor Press was present, and were the particular concern of popular Mr. A. W. Hulbert, who takes care of the advertising for Smith's Motor Accessories.

Altogether the evening was a great success, and another dance is to be held in a few weeks' time.

**PUBLICATIONS RECEIVED**

*Agreement made with the British, Foreign and Colonial Corporation, Ltd., for the formation of a Heavier-than-Air Transport Company to be called the Imperial Air Transport Company, Ltd. H.M. Stationery Office, London. Price 6d. net.*

*Note Tecnica di Aeronautica. December, 1923. Commissariato dell' Aeronautica Intendenza Generale, Rome.*

*Department of Overseas Trade. Report on the Economic and Commercial Situation of Australia, to June, 1923. By S. W. B. McGregor. London: H.M. Stationery Office, Kingsway, W.C. Price 2s. 6d. net.*

*A Study of Radio Signal Fading. By J. H. Dellinger, L. E. Whittemore, and S. Kruse. Scientific Papers of the Bureau of Standards, No. 476. September 25, 1923. U.S. Government Printing Office, Washington, D.C., U.S.A. Price 10 cents.*

*The R.O.F.A.A. Journal. Vol. 1, No. 1. December, 1923. The Royal Ordnance Factories Apprentices' Association, Main Gate, Royal Arsenal, Woolwich. Price 6d.*

*Militärwissenschaftliche und Technische Mitteilungen. Vol. LIV. November-December, 1923. Stubenring 1, Vienna I.*

**AERONAUTICAL PATENT SPECIFICATIONS**

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

**APPLIED FOR IN 1922**

*Published January 31, 1924.*

23,959. H. A. WHITESIDE. Aircraft. (209,137.)

33,829. C. DORNIER and DORNIER-METALBAUTEN GES. Metal coverings for supporting planes. (190,176.)

**APPLIED FOR IN 1923**

*Published January 31, 1924.*

2,930. SOC. DES MOTEURS SALMON (SYSTEM CANTON-UNNE). Device for keying a sleeve on a tubular shaft. (194,272.)

**FLIGHT**

*The Aircraft Engineer and Airships*

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